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NOVEMBER 1989

FOREST INDUSTRIES

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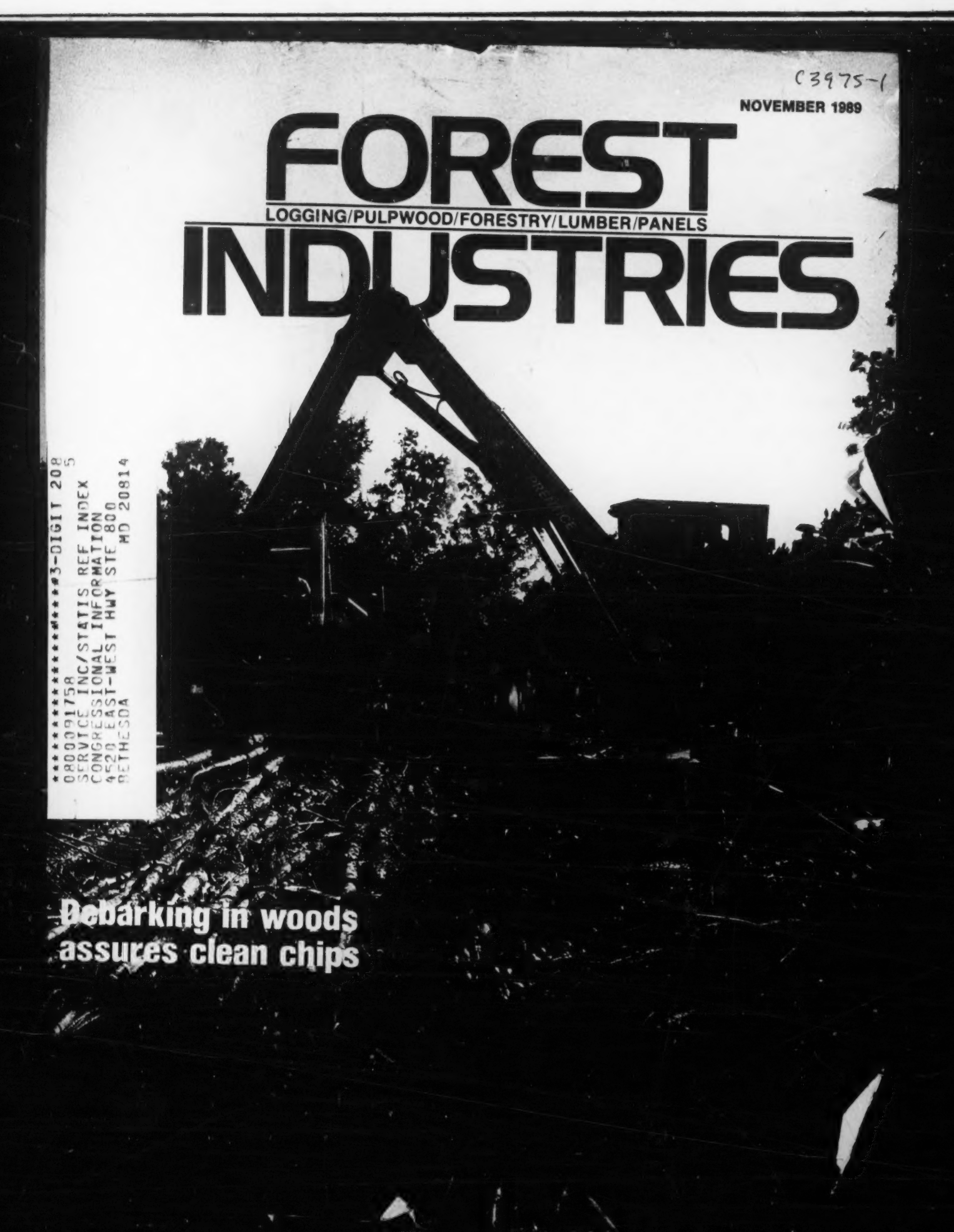

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Debarking in woods assures clean chips

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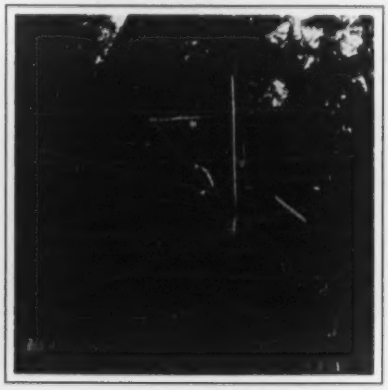

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The 1980s 'mega-trend' has been rapid globalization of markets for pulp and paper products, with raw wood fiber markets following suit. What does the next decade hold?

Changes in regional supplies to boost world fiber trade

By Robert W. Hagler

Reston, Virginia

The world will become a busier place for shippers of wood fiber during the 1990s as changes in regional supplies of wood lead to expanded opportunities for imports and exports.

In the 1980s, perhaps the greatest single "mega-trend" impacting the forest industry was rapid globalization of pulp and paper markets. The acceptance of eucalyptus and other hardwoods, increasing use of intensively managed plantation fiber and competitive ocean freight rates during the '80s have broadened the spectrum of competition.

A pulp mill in Georgia still competes with its Alabama neighbor, but also with mills in Sweden, Portugal, Brazil, Chile and New Zealand. Booming pulp markets have strained some local resources and forced markets to become more world-oriented.

Can forest resources keep up with the demand? Are we running out of wood?

The answer, of course, is no. In most regions of the world, a slight increase in domestic wood prices has a dramatic effect on the volume of wood available for industrial uses. Global shortages of industrial wood are not anticipated over the next 10-20 years.

However, we do seem to be heading for regional dislocations in wood supply. They will affect both the relative cost of wood fiber and corporate management and investment strategies during the next decade.

Supply imbalances are developing in both softwoods and hardwoods.

Among softwood producers, the imbalance favors several Pacific Rim nations (Fig. 1). Projected surpluses of conifers in Chile, Australia and New Zealand could dramatically change the competitive positions of these regions compared to traditional suppliers to Japan, Taiwan and Korea. Tightening supplies in the U.S. Pacific Northwest will accelerate the process.

Wood costs will favor Chile and New Zealand, especially, as compared to other softwood sources.

Around the Atlantic Rim, softwood supplies will be extremely tight. Northern Europe's forests are intensively managed; eastern Canada's are currently fully utilized on a sustained-yield basis. These wood supplies are not very responsive to supply and demand pressures. The exceptions are the privately owned woodlands of the eastern U.S.

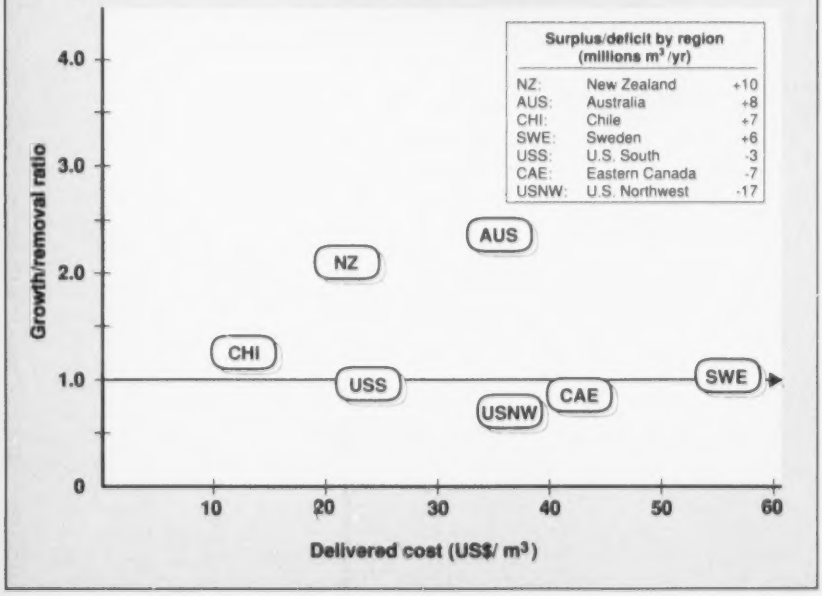
As Fig. 2 shows, the Atlantic Rim boasts large hardwood supplies. The overgrowth from the U.S. South and eastern Canada alone equals the combined surpluses of Chile, Australia and the U.S. Pacific Northwest. Brazil, Central America and Africa also have large supplies of available hardwoods.

This brief snapshot analysis covers regions which represent the trend toward dislocation in world fiber resources. This growing dislocation has already impacted world trade and wood prices. Over the next decade, it will be a driving force behind the strategic positioning of major industry participants attempting to capitalize on, or negate, competitive advantages resulting from wood fiber dislocations.

Domestic markets for pulpwood and wood chips are affected by three factors: supply/demand, production costs and export/import opportunities. Until the 1980s, most North American markets were driven by either supply/demand or production costs—especially in the U.S. South and Ontario.

Because of landownership patterns and a diminishing dealer system, the South is almost a totally open market for pulpwood. Prices can rise above production cost increases, or fall in both real and nominal terms. Prices determine supply; deficit cutting (growth/removal ratio less than 1.0) is unrestrict-

FIG. 1—Softwood fiber supply environments for selected regions



ed. In eastern Canada, however, ownership patterns, supply structure and forest management regulations make the supply much less elastic. Pulpwood price increases generally keep pace with rises in production costs (labor, energy, stumpage fees). Prices rarely fall or rise faster than general inflation.

Today, however, import/export opportunities are much more important, thanks to supply dislocations, changing resource-demand patterns and competitive transportation costs. Nearly every wood resource market in the world is affected—sometimes dramatically.

Three examples illustrate these impacts on prices:

- Portugal formerly controlled the price of pulpwood, and it was illegal to export pulpwood or wood chips. With controls removed during the '80s, Spain started buying cheaper Portuguese wood. Soon, Portuguese hardwood pulpwood prices zoomed 140%, while softwood's price doubled.
- Chile also prohibited exports until 1985. But when controls were abolished, a lack of loading and dock facilities limited exports. This created a two-tiered market, with export prices 200% above domestic prices. Nonetheless, the situation pulled up domestic pulpwood prices by nearly 50% since 1986.
- U.S. Pacific Northwest pulpwood prices show the increasing volatility of markets when partly driven by import/export opportunities. Fiber prices in Oregon and Washington are back to their early-'80s habits of extreme volatility. Since early 1988, softwood chip prices have risen 80% and hardwood chip prices are up nearly 40%.

Local prices can be influenced by import opportunities. Potential purchases of lower-cost imported fiber help hold down domestic prices.

Through the 1990s, regional pulpwood markets worldwide will be influenced by an increasing volume of international pulpwood sales. Although these shipments are economically inefficient, regional fiber shortages will cause them to continue.

Unless wood chip cartels spring up, the increased influence of import/export opportunities on regional pulpwood markets will make these markets more interrelated during the '90s. This, in turn, will increase the volatility of regional wood markets as they react unevenly to global market trends in pulp consumption, paper production and general economic health.

The next decade will bring little change to the list of importers of pulpwood. But major changes are projected on the supply side as the abundance of softwood from Chile, New Zealand and Australia elbows out some western U.S. and Canadian sales to the Far East.

Shortages of hardwood in the Pacific region have resulted in sales from the U.S. South to Asia. These exports are not likely to continue through the next decade as hardwood plantations in Chile, Malaysia and the Philippines come on stream.

In the Atlantic region, major changes in pulpwood suppliers are expected. Softwood from Portugal, Spain, Chile and Africa will be harder to get because of potential export restrictions, increasing domestic prices and shipping costs. Northern Germany's softwood surplus will be consumed locally, and unified European Community (EC) trade rules after 1992 will probably end most wood exports.

East Bloc countries will continue selling softwood, but not at bargain prices. Softwood-hungry Scandinavians will probably turn to eastern North America as the most obvious source. The pinewood nematode, which stopped this trade in 1985-86, may not always be an obstacle.

Hardwood trading patterns will probably remain as they are now during the 1990s. Pulp and paper producers' efforts to find fiber increasingly will influence corporate investment and management decisions.

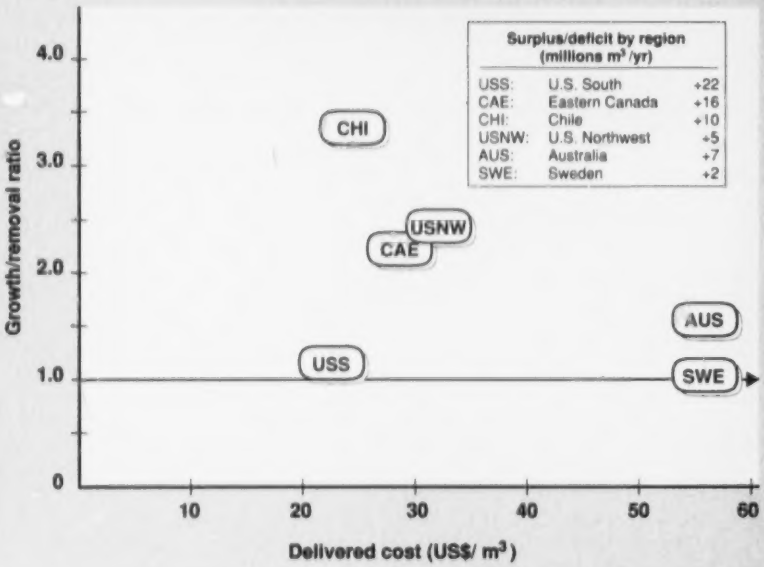
Companies will invest overseas to offset fiber dislocations. These investments might range from part-ownership of pulping plants to establishment of plantations. Japanese companies have so far led the trend toward locking in hardwood resources in the Pacific region. North American companies have started developing hardwood resources in the West's predominately softwood forests.

If the pinewood nematode problem in eastern North America can be solved, the U.S. South could become a major exporter of pulpwood and chips. Meanwhile, many offshore companies view the South as an attractive investment opportunity. The deregulated nature of the region's softwood resources, as well as current relative wood costs, create an attractive fiber package. Future expansions and ownership changes in this region are likely to have a distinct international flavor.

Many domestic fiber markets are likely to become unstable in the 1990s as they are drawn into volatile world markets. Impacts will not be the same in all regions, but fiber buyers in many areas will try to increase their control of raw material. Such strategies will cost money, and may make it harder for companies to expand or modernize their mills.

Clearly, the risk and effect of potentially volatile pulpwood markets on a company's operations and profitability must be reconsidered and weighed against the investment required to ensure a proper supply of raw materials. ■

FIG. 2—Hardwood fiber supply environments for selected regions



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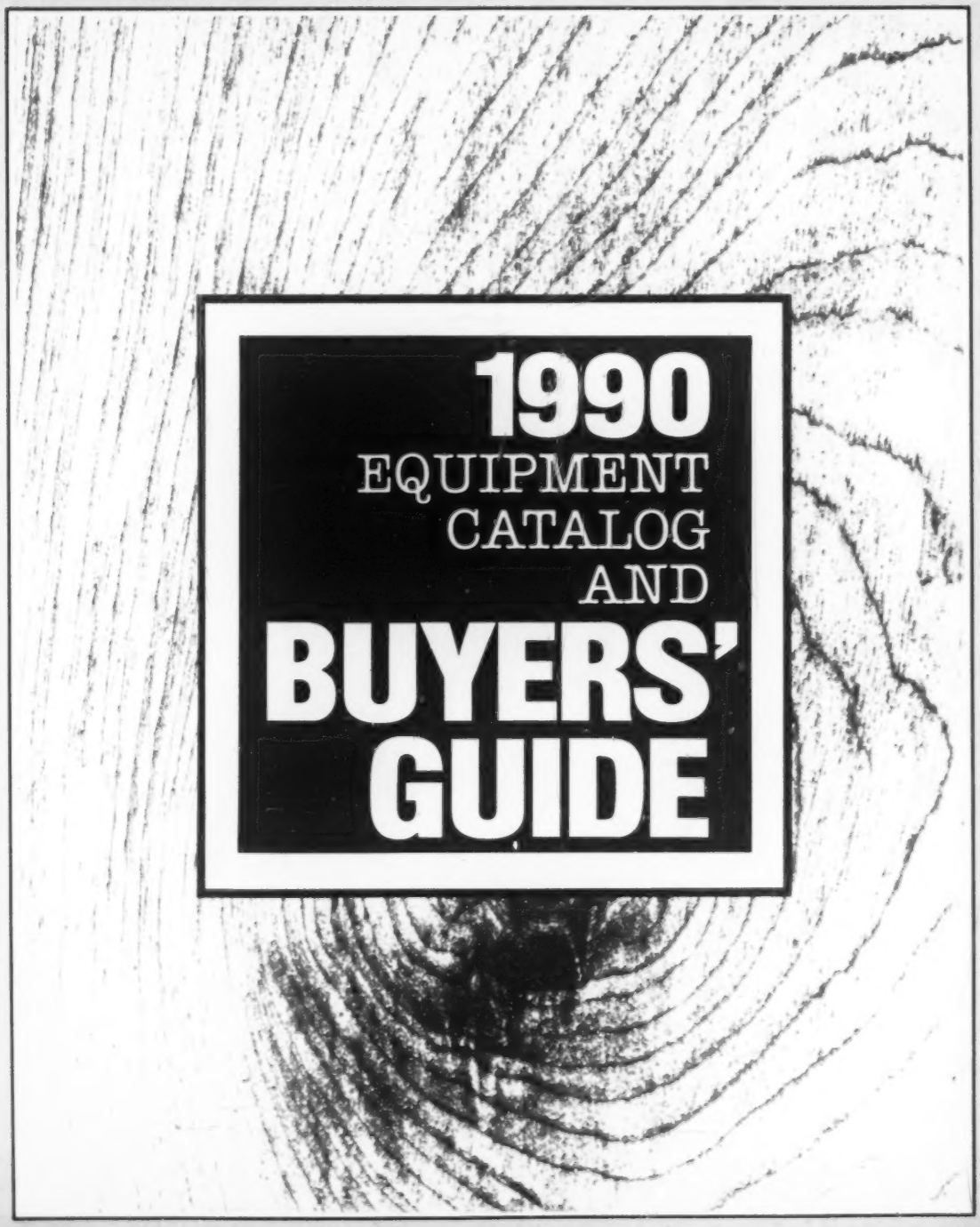

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Part I of this series considered the theoretical side of producing densified wood fuels. Part II looks at some actual types of operations and equipment

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THIRD QUARTER

Profits do well in U.S. while falling in Canada

NEW YORK, N.Y.—Forest industry companies had a good third quarter in the U.S., but their Canadian colleagues didn't fare so well. A digest of major U.S. producers' corporate profits showed a 17% increase, while major Canadian companies posted a 31% profit drop. In both cases, profits for this year's third quarter were compared to the same period in 1988.

Strong lumber prices were credited with much of the profit increase in the U.S.

Canadians blamed three factors for their decline in profits: overcapacity and lower prices for newsprint, the strong Canadian dollar and lower U.S. housing starts. Canada's dollar averaged 84.5 U.S. cents during the third quarter, compared to 82 cents a year earlier. ■

U.S., Canadian forest industry results, third quarter 1989 ($ millions)

Company	Sales	% change 1989/88	Earnings[1]	% change 1989/88
Abitibi-Price	C$16.4	0.4	C13.6	-69.4
Boise Cascade	1,100.0	10.0	62.8	-12.7
Canadian Pacific For. Prods.	C707.6	-7.7	C45.1	-51.3
Canfor Corp.	C254.4	-5.4	C26.8[2]	18.2
Champion International	1,318.5	2.6	102.1	-16.6
Chesapeake Corp.	205.7	9.2	12.5	-12.9
Domtar Inc.	C622.0	-1.0	C9.0	-63.7
Donohue Inc.	C152.8	-3.6	C9.7	-43.3
Fletcher Challenge	C369.5	2.4	C28.5	-26.6
Georgia-Pacific Corp.	2,646.0	9.8	178.0	58.1
Great Northern Nekoosa	980.5	4.6	65.7	-7.2
International Paper Co.	2,900.0	20.5	214.0	6.6
James River (7/30)	1,470.5	6.0	57.5	1.6
Jefferson Smurfit	331.1	7.2	31.1	-15.2
Longview Fibre (7/31)	177.9	4.5	18.1	-35.0
Louisiana-Pacific Corp.	510.1	10.2	51.5	39.9
MacMillan Bloedel	C818.0	-0.8	C65.4	-7.2
Mead Corp.	1,187.5	2.0	69.7[3]	-59.1
Noranda Forest Inc.	C1,199.0	-0.2	C45.0	-31.6
Pope & Talbot	162.1	19.8	13.2[4]	56.0
Potlatch Corp.	318.4	16.3	35.1	24.2
Scott Paper	1,249.3	8.6	75.9	-1.3
Scott Paper Ltd.	C124.9	53.9	C9.4	-26.2
Stone Container Corp.	1,373.3	34.3	70.4[5]	-20.9
Temple-Inland Inc.	479.9	5.9	55.6	4.9
Union Camp Corp.	667.3	-0.4	78.1	1.3
Westvaco Corp. (7/31)	473.1	7.3	55.5	7.1
Weyerhaeuser Co.	2,574.4	9.1	166.8[6]	15.2
Willamette Industries	486.6	10.3	52.9	35.7
WTD Industries	121.8	32.8	2.2[7]	63.6

1. Income after taxes from continuing operations, excluding most significant nonrecurring items in both years. 2. Canfor: 1988 quarter excludes gain of C$9.4 million. Mead: 1989 quarter includes a gain of $15.5 million from sale of Mead Release Products. 1988 quarter includes a gain of $100.9 million on sale of stake in Brunswick Pulp. Pope & Talbot: 1989 quarter includes a gain of $3.05 million from sale of sawmill. Stone: 1989 quarter includes a net gain of $4 million. Weyerhaeuser: 1989 quarter includes a $3.5-million pretax loss associated with initial phase of the company's refocusing plan offset by a $48.99-million gain on sale of common stock by a subsidiary. WTD: Quarter ending Oct. 31, 1989.

NEW USFS PLAN

FS to manage oldest forests as ecosystems

WASHINGTON, D.C.—Old-growth forests will be managed as "diverse and productive ecosystems," the U.S. Forest Service announced in October. The eventual result: less logging in these forests.

"For the first time as an agency, we are recognizing the importance of old growth on a national level," said Forest Service Chief Dale Robertson.

The agency's new national policy on old-growth forests includes definitions of old growth and guidance on land-use decisions, silvicultural practices and research. It also aims to reduce the fragmentation of old-growth stands by selectively locating timber sales until more is learned about these ecosystems.

The policy seeks to create new old-growth forests by extending rotations, while still providing timber products.

"We do not anticipate an immediate impact on our timber sale program since our forest plans provide for many old-growth values," Robertson added. "However, there will be an impact when we complete the final forest plans in California, Oregon and Washington, and when we amend or revise other forest plans due to a greater emphasis on old-growth values." ■

SF SHAKER

Wood performed well in strong earthquake

SAN FRANCISCO, CALIF.—Wooden structures did just what was expected of them during the 7.1-force earthquake which shook the San Francisco Bay Area Oct. 17. They rolled with the ground and stayed up.

At least most of them did. The glaring exceptions were in areas such as San Francisco's now-notorious Marina district, where some buildings put up on landfill collapsed. In almost every case, building inspectors reported, the collapse occurred because the soil liquefied when the powerful shock waves rolled through.

It was San Francisco's strongest temblor since 1906. And just as they did then, the majority of the city's famous wooden Victorian buildings survived the shake. The fire which followed the 1906 quake destroyed much of the city.

This time, fire damage was comparatively small. Damage totals were predicted to reach $10 billion, however, making this the most expensive natural disaster in U.S. history.

According to Western Wood Products Assn. manager of wood engineering research and development Kevin Cheung, wood offers good strength and stiffness with lower weight. These characteristics minimize the effects of a quake.

"Wood-based designs allow floors and walls to work together under abnormal stresses such as quakes, making the building as a whole stronger than its parts," he explained.

"For the most part," Cheung noted, "wood buildings performed very well during this quake. We don't anticipate any tighter requirements on wood construction here because of the quake." ■

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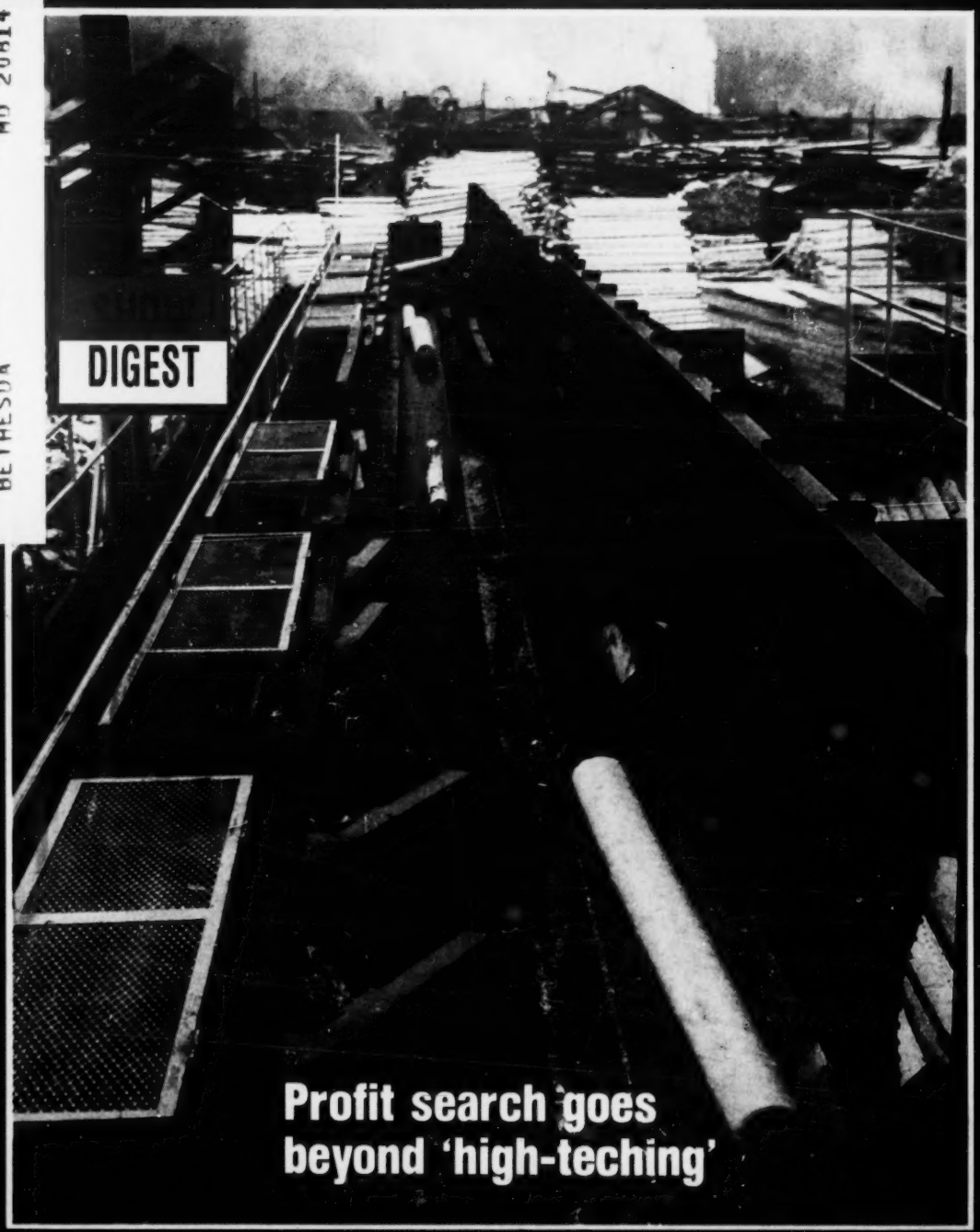

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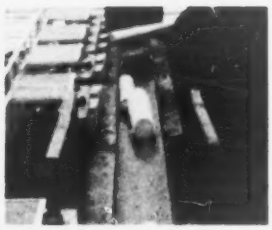

About the cover: *Mill adds machines, computers to make a profit. See p. 15. Photograph by Jean Sorensen.*

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Sawmill automation is a given, but how is it best done?

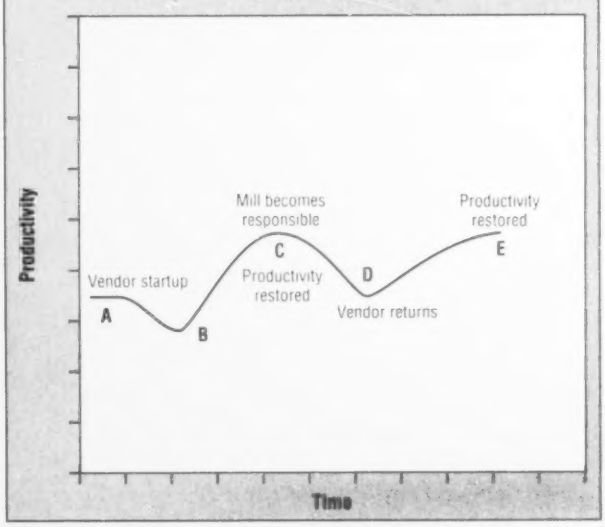
Optimizers promise efficiency and higher profits, but crews must know how to work with the systems to gain promised benefits

BY ROBERT HUNTER

To increase productivity, most sawmill managers accept the fact that they have to automate their mills. Capital-spending figures from all major lumber-producing regions in North America showed heavy outlays for process control systems or optimizers in 1988-89.

David Cohen and Steven Sinclair reported that improvements in technology have been credited for the most productivity growth in the lumber manufacturing industry. Their study provides "empirical evidence that increased adoption of innovative processing technologies is linked to superior performance. Companies with the highest levels of adoption exhibited average to better than average profitability and were gaining market share."

FIG. 1—Startup curve for new machinery



The list of sawmill optimization systems in Table 1 suggests that total, mill-wide control or automation is available today. Many of these systems are already in their second or third generation of development.

Installing an optimizer may not result in an immediate increase in productivity; instead, there may be a periodic loss of earnings because of setup errors or startup problems.

TABLE 1—Sawmill optimization systems

Manufacturing:

Bucking
Primary breakdown
Cant
Edger
Trimmer
Grade readers
Kiln control
Energy

Some startups shaky

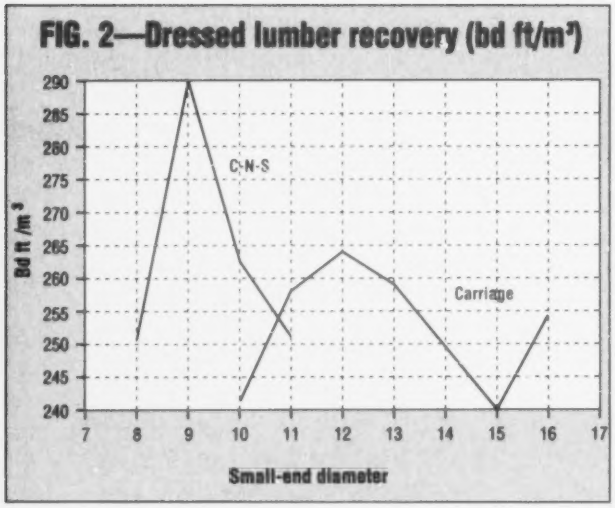
Fig. 1 shows the process a mill may follow during startup of an optimizer control system. This mill performed at a relatively constant level until the optimizer system started up (A).

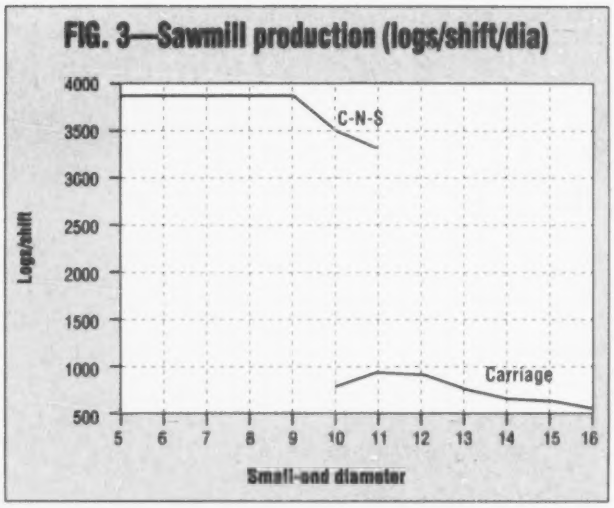
The decline in performance may be attributed to system debugging. As familiarity with the optimizer control system increases, so does mill performance, which soon surpasses pre-optimizer levels (B). The time associated with this milestone could be weeks or months.

At point C, the vendor completes his checklists of tasks and the mill becomes responsible for the optimizer. In many cases, mill performance or optimizer performance drops off after the vendor leaves. After a steady decline in performance, the vendor is called back to help resolve problems and do more training.

This startup pattern may be repeated several times over a number of months due to equipment malfunction or optimizer tuning errors.

The successful optimizer project requires a few key ingredients. This startup curve can be minimized by assign-





ing qualified people to the project in its early stages. Participation with the vendor before the optimizer is shipped will ensure that both hardware and software are debugged and will increase the crew's familiarity with system operation.

Management's role

The first step for action or progress is knowing your current position. Management's role in the startup of an optimizer control system is to identify the potential economic benefits and track their progress over time.

Several benefits are possible from an optimizer control system: increased production, recovery improvements, less economy lumber, less planermill trim loss, or a higher chip factor. By tracking these variables, we can evaluate the impact of the control system and tune it for optimum performance.

Today's optimizers have no capabilities to adjust for manufacturing trends or to optimize the process. People transform information from optimizer production reports and react accordingly, thus creating the feedback control system.

Most mills already have multiple scanning systems operating, but place little value on their production reports. Reports are analyzed at the end of each shift, instead of during the shift. The next logical step is to turn the optimizer into a real-time feedback control system.

In a real-time system, mill people will monitor various machine centers and be alerted to manufacturing problems. They will diagnose the problem, take corrective action, then monitor the real-time information to see if their actions corrected the problem.

Why automate mill-wide?

Mill-wide automation should provide a conduit for information to flow toward management for strategy and control. We expect the optimizer to measure the product and control the process. Using information generated by the optimizer is the next logical step in making the operation more profitable.

Combining production information from the optimizers and cost information from administrators will give managers the information they will need to formulate a strategy and direct the business. Current practices of gathering production reports from each optimizer and then reentering the data in administrative computer systems will be streamlined by networking the computers with each other.

The graph in Fig. 2 shows the dressed lumber recovery for each small-end-diameter log by machine center. This graph alone suggests that logs in the 11-in. diameter class should be processed on the carriage instead of the Chip-N-Saw for higher recovery.

Fig. 3 shows the number of logs per shift processed by small-end diameter for each machine center. The Chip-N-Saw slows down for logs greater than 9 in., while the carriage struggles to properly position logs less than 11 in. Both factors reduce log throughput. As the log diameter increases, the number of saw lines increases, which accounts for the uniform decrease in throughput.

If we combine data from the dressed lumber recovery graph and the sawmill production graph, we can develop machine performance curves for each small-end diameter class of logs (see Fig. 4).

Performance curves are a function of lumber, chip, veneer and fuel selling prices. As these products change in price, so will the curves.

Logs smaller than 11 in. should be processed on the Chip-N-Saw even though the recovery graph indicated that 11 in. logs had a higher recovery on the carriage. Logs ranging from 11.1 to 15.5 in. should be peeled on a lathe, as this particular complex includes a sawmill and a veneer plant. Logs over 15.6 in. should go to the carriage. These values will change as mill personnel tune their optimizers and improve their manufacturing process.

Strategic resource management

Trees are the strategic resource in the wood products industry. Automating our mills is only one step in increasing productivity and ensuring survival in the '90s. Optimizers will provide planners with data for using scientific methods to direct their businesses. These scientific methods

include linear programming, simulation and database management.

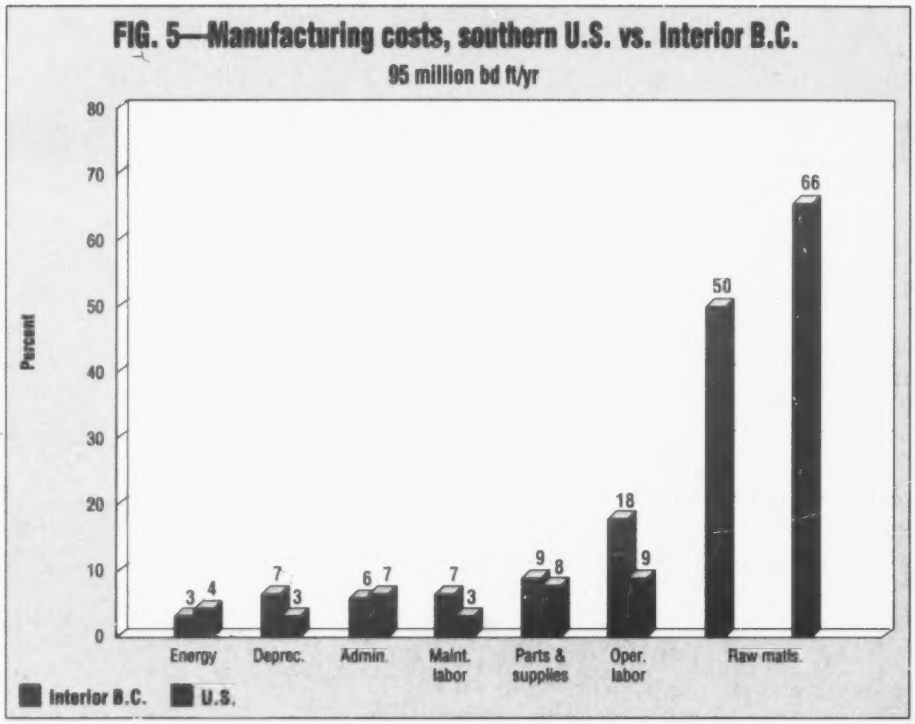
Linear programming (LP) will identify the ideal product mix and raw material, based on these factors:

- Selling prices of finished products.
- Raw material cost and supply.
- Processing rates and equipment capabilities.
- Lumber recovery.
- Manufacturing cost.

Simulation will allow the mill to test the LP solution and identify production bottlenecks. Each optimizer will be capable of simulating tuning changes from historical data to predict their impacts on mill production.

Databases will be developed to track actual mill performance against forecasts. Over time, the database will show the relationship between raw material quality, optimizer or control system tuning, finished product recovery and plant earnings.

This data will also help buy raw material by defining the break-even point for timber purchases.



Management challenges in the '90s

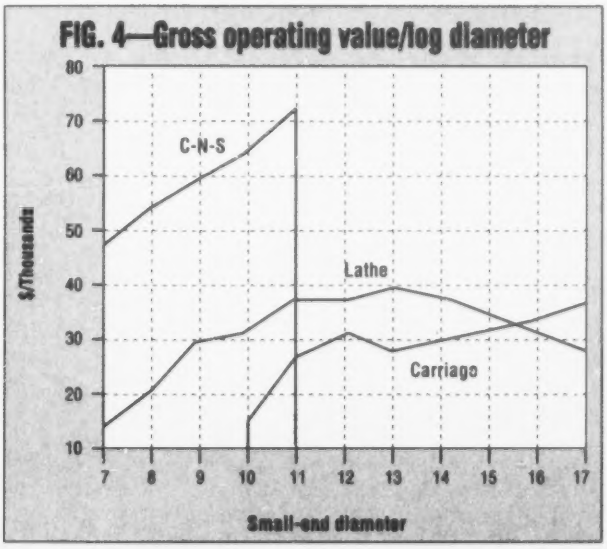
North American lumber producers face many common and uncommon challenges. Fig. 5 depicts the percentage cost breakdown for producing 95 million bd ft a year of dimension lumber in both a Canadian and U.S. mill.

Raw material and labor represent 80% to 85% of the total cost. The cost of raw material is considerably less in British Columbia, but this is offset by labor rates twice as high as in the U.S. South.

It is necessary to note that we are not comparing *total* cost, but only the *percentage* cost breakdown for each geographic region. Both of the regions can reduce labor costs and can increase lumber recovery through automation.

The challenge for management will be to define the markets that complement their raw material supply and to develop a strategy for automation and utilization. This strategy will not only include computer controls, hardware and software. It must also include "humanware."

"Humanware" is otherwise known as people—the valuable employees who will understand, maintain and use the computer control systems in order to achieve management's goals. ■



THE AUTHOR is president of Numerical Methods Inc. of Federal Way, Wash., an industrial and process engineering firm for the wood products industry. Previously, he was co-founder and general manager of Newnes Automation Inc. Prior to that he worked as an account manager with AccuRay Corp. and as division industrial engineer with Manville Forest Products Corp. Hunter received a B.S. degree in industrial engineering from the University of Arkansas in 1982.

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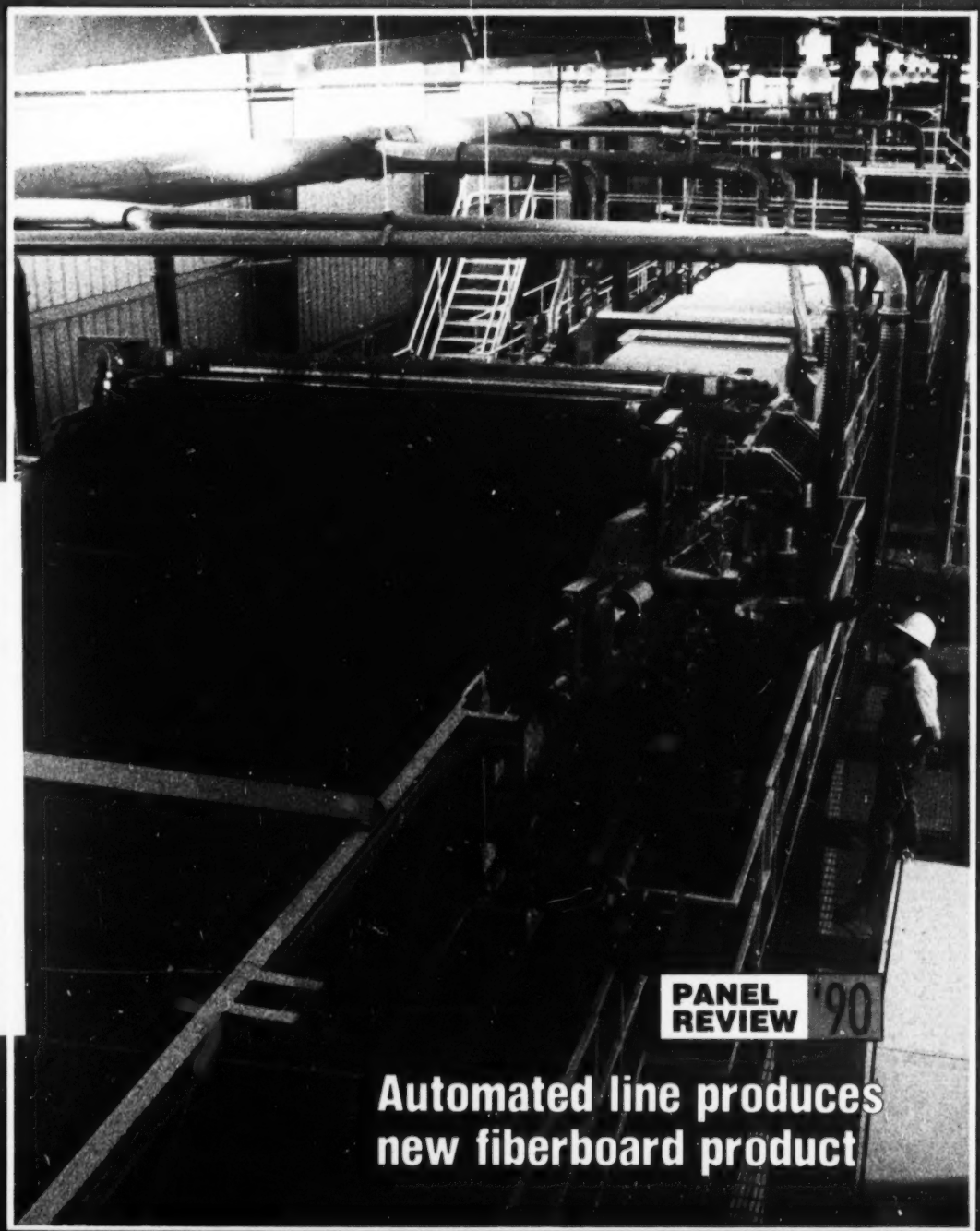

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Automated line produces new fiberboard product

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10 **'Clinic' sets records in final run at Coliseum** Crowds at this year's Forest Industries show made it clear that the event has outgrown its old home, is ready for new center

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25 **Forest conservation debate: avoid 'win-lose' situation** In the '90s, forest industry and preservationists should realize that active forestry can coexist with a sound environment

28 **With some exceptions, panel output strides ahead** OSB leaps into the breech as softwood plywood suffers from strikes, timber shortages. MDF continues to climb

32 **Plywood can compete, thanks to newest spindleless lathe** Second-generation machine peels very small logs at Champion's Camden, Texas, plant

37 **Huber OSB plant built closer to timber, markets** J.M. Huber's new OSB plant in Commerce, Ga., is the fourth such facility built in Georgia in the last couple of years

41 **Sawmill headrig of future: could it be a veneer lathe?** Although the days of lumber cut from big trees are numbered, technology helps producers use small timber effectively

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With some exceptions, panel output strides ahead

OSB leaps into the breech as softwood plywood suffers from strikes, timber shortages. MDF consumption continues to climb

Raw material shortages and a tepid housing market combined to cast a few sprinkles on the panel industry's garden party last year, but not so many as to send participants running for shelter. Structural panel and particleboard output eased back slightly—almost immeasurably, in the case of particleboard—from 1988 record levels, while medium-density fiberboard shipments continued an upward course begun in 1983. Hardboard shipments also increased.

Since recovery from the recession of the early 1980s, panel makers largely have grown accustomed to setting records each year. Thus, 1989 production and shipment levels, while not at all-time highs, were still pretty good. Structural panel production would have set a record two years previously, particleboard likewise in 1988.

Figures for the decade are shown in the table on this page. In summary:

- Structural panels (softwood plywood, oriented strand board, waferboard and oriented waferboard) in 1989 slipped 2.6% from the year before to a production level of 26.5 billion ft² (⅜-in. basis).
- Particleboard shipments nearly tied the 1988 mark. At an estimated 3.827 billion ft² (¾-in. basis), the total was less than a tenth of a percentage point behind the previous year's record.
- MDF shipments in 1989 inched up 1.4% to a record 951.8 million ft² (¾-in. basis). The one billion foot mark continues to elude MDF producers.
- Hardboard shipments increased 1.5% to 5.2 billion ft² (⅛-in. basis).

Structural panels

Within the 26.5 billion ft² total, the shifting relationship between softwood plywood and non-veneer panels deserves notice. Softwood plywood production last year dropped 5.3% to 21.4 billion ft² while OSB *et al* jumped 10.9% to 5.1 billion ft². Plywood represented 83% of the total in 1988; 76% in 1989.

The American Plywood Assn. forecasts structural panel production in 1990 will increase 2% to 27.1 billion ft².

The softwood plywood industry has been hurt badly by preservation-related federal timber sale cutbacks in the West. The lower plywood figures also reflect production lost to strikes against two major plywood producers, as well as an 8% decline in home building last year.

Housing starts in 1989 totaled 1,358,500 units. The

U.S. panel production, 1979-1989 (thousand ft²)

Year	Structural panels (⅜-in. basis)	Particleboard[1] (¾-in. basis)	MDF[1] (¾-in. basis)	Hardboard[1] (⅛-in. basis)	Hardwood Veneer[1] (Surface)
1979	19,653,000	3,376,488	506,728	7,687,798	1,323.8
1980	16,468,000	2,949,897	493,140	6,140,000	1,190.0
1981	17,023,000	2,869,352	516,102	6,104,000	1,070.0
1982	16,402,554	2,393,066	446,157	5,586,918	1,032.9
1983	20,821,342	3,009,343	604,323	7,302,702	1,127.5
1984	21,967,917	3,195,586	633,974	6,837,118	1,085.5
1985	22,838,170	3,330,517	684,593	6,300,146	942.9
1986	25,632,830	3,602,757	780,598	5,822,328	1,239.3
1987	27,001,000	3,705,560	899,282	5,457,508	1,113.4
1988	27,202,822	3,829,021	938,717	5,117,857	1,124.4
1989	26,490,320	3,827,649[2]	951,897[2]	5,195,651	n.a.

[1] Shipments; [2] Estimated.

figure in 1988 was 1,469,214 units. The National Assn. of Home Builders estimates 1.38 million starts this year.

"Despite the decline in housing, it is encouraging that demand has continued to grow in the nonhousing structural panel markets," observed APA president William T. Robison. "If we can only bring some common sense to the resource issue, the panel industry can look forward to furthering its nonhousing market gains and enjoying a modicum of good health."

APA expects home building to remain soft through the first half of 1990 but improve modestly in the second half. Home remodeling should continue to improve.

Domestic nonhousing markets will provide a mixture of opportunities, APA projects: nonresidential building will bottom out, nonbuilding construction will increase and industrial markets should experience a renewal.

Exports should rise to 1.75 billion ft² this year from 1.5 billion ft² in 1989.

Particleboard and MDF

Combined shipments of the two products in 1989 were estimated by the National Particleboard Assn. at 4.78 billion ft² (¾-in. basis). When calculated this way, these two segments put another record into the books last year, also the seventh consecutive year in which shipments increased. MDF, as noted, contributed the margin of gain.

NPA's latest survey shows U.S. matformed particleboard capacity was 4.325 billion ft² at the beginning of 1990. Capacity will increase to 4.5 million ft² by the end of the year. The Allegheny Particleboard plant in Mt. Jewett, Pa., is due to start up in May; another 315 million ft² of capacity should be added through 1992.

MDF capacity in the U.S. was 1.035 billion ft² as 1990 began, and should be 1.055 billion ft² by Dec. 31. Louisiana-Pacific's Urania, La., line, due for completion in October, will offset the March 1990 closure of Weyerhaeuser Co.'s Broken Bow, Okla., plant. Next year should see another 100 million ft² added to MDF capacity.

Promotion of particleboard and MDF products to retailers and end users through the Particleboard/MDF Institute is stepping up. Now in its second year, the Institute is gaining momentum as it focuses on its ongoing marketing assignment. The first annual meeting, last Oct. 16 and 17 in Tempe, Ariz., attracted over 70 delegates. The Institute was founded Jan. 1, 1989.

Norman Voss of Georgia-Pacific Corp. was elected chairman; Jack Beene of Temple-Inland Forest Products Corp. was elected vice chairman.

Hardboard

Shipments of hardboard products from U.S. plants in 1989 arrested a downward slide that has been in place since 1983, even though save 1988, the volume is the lowest in the decade.

However, the hardboard industry outperformed predictions in 1989 with siding shipments up 1% and industrial product shipments up 3% from 1988 levels. Producers expect slow but steady growth in 1990, noted C. Curtis Peterson, executive vice president of the American Hardboard Assn.

AHA has expanded its services to include support of hardboard siding marketing with an aggressive advertising and public relations program, Peterson pointed out. ■

Canadian panel output continues growth

Production and shipments of non-veneered wood panels from Canadian mills increased substantially in 1989, while plywood hovered close to the 1988 mark.

As the table shows, production of construction-type plywood inched upward a slight 0.2% to 2.165 million m³. Shipments declined 1.6% to 2.148 million m³.

Particleboard production and shipments increased 5.4% from the year before, while waferboard production and shipments soared 31.6% and 29.5%, respectively. Hardboard shipments more than doubled.

Plywood and particleboard figures for 1989 stayed below high marks set in 1987. Waferboard/OSB production and capacity have increased annually.

Canadian hardboard shipments, at 92,990 m² (⅛-in. basis), exceeded 1988's 39,290 m² by 137%.

For softwood plywood, the picture in British Columbia last year was much better than that for the country as a whole. A buoyant domestic economy and a healthy export market kept the B.C. plywood industry operating at full capacity in 1989.

Canadian panel production, 1984-89 (m³)

Year	Const. plywood	Particleboard	Waferboard/OSB
1989	2,165,356	1,279,781	2,167,781
1988	2,161,658	1,213,364	1,646,663
1987	2,229,000	1,355,107	1,607,171
1986	1,876,896	1,139,253	1,347,638
1985	1,957,887	1,047,500	1,336,566
1984	1,846,369	843,346	1,190,254

The 14 member mills of the Council of Forest Industries of B.C. (COFI), which account for 72% of all Canadian softwood plywood, reported increases in domestic and export shipments for the fourth year in a row to 1.764 billion ft². Shipments within Canada were 1.458 billion ft² (⅜-in. basis), 7.6% over 1988, while exports jumped 18% to 306 million ft².

The United Kingdom remained the largest export market for COFI Exterior plywood. Exports to Japan jumped 34% to move past Germany into second place. Exports to the UK, at 155 million ft², were up 9%.

COFI carried on an aggressive program of plywood promotion and market development in 1989.

"Our members are developing enhanced versions of some basic plywood grades," noted Peter Metcalfe, COFI plywood market development manager. These include COFI-Roof sheathing, which has a patented edge profile, and solid-core underlayment panels.

Increased activity in industrialized building is good for plywood. The stressed skin panel roofing system promoted by COFI has been received enthusiastically by builders, particularly in the U.K.

Projects relating to 1992 Eurocodes and harmonization of standards were high on the priority list at COFI's North Vancouver Technical Center in 1989. ■

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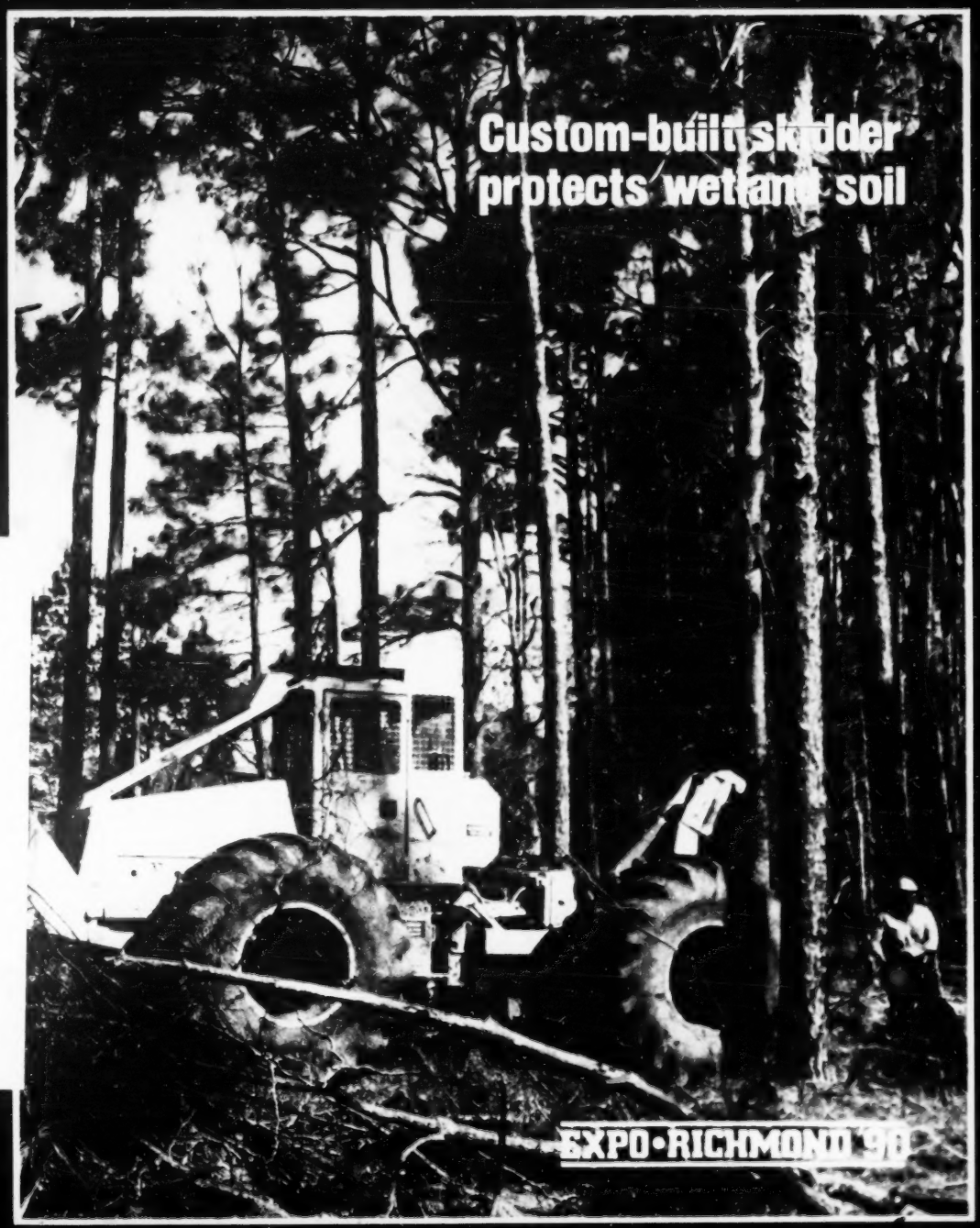

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L-2 **Logger returns to woods after trying hand at trucking** Georgia logger Kenneth Moore felt he needed a career change. So he took up trucking. After three months he returned to the woods with a new crew and equipment

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Stop logging to save owls, say agency scientists

The forest products industry was gutshot April 4 by six scientists from three agencies of the federal government, d.b.a. the Interagency Scientific Committee to Address the Conservation of the Northern Spotted Owl.

The committee recommended that 8,444,650 acres of timberland in all ownerships in Washington, Oregon and California be designated habitat conservation areas (HCAs) to protect 925 known current pairs, 1465 estimated current pairs and 1759 estimated future pairs of spotted owls.

After deducting land already reserved in wilderness areas, national parks and other setasides, this would convert into HCAs 5,066,790 acres of forested habitat currently available for timber production.

The 193 HCAs recommended would have a 50-year lifetime as the first phase of a two-stage owl protection program. The second stage calls for research and monitoring to fine-tune the initial strategy. HCAs vary in size from 50 to 676,000 acres.

While acknowledging larger issues such as old-growth forest management and biodiversity, the committee "kept to our mandate to develop a conservation strategy specifically for the northern spotted owl," recommending that an assessment of short-term economic and social impacts affecting timber availability "is critically important." Assignment of a coordinator and a state and federal interagency staff to oversee conduct of the conservation strategy was recommended.

The report indicates that owl habitat conditions, while usually found in old-growth forests, sometimes occur in younger forests as well.

Harvesting trees of any age class, including salvage and firewood cutting, would be prohibited in HCAs, as would virtually all road building. The proposal doesn't end with the HCAs however, defining all forestlands outside HCAs as the "forest matrix," within which timber harvesting should also be regulated as specified: when 50% of the forest landscape within each quarter township consists of forest stands with a mean dbh of 11 in. and a canopy closure of 40%.

"We have concluded that the owl is imperiled over significant portions of its range because of continuing losses of habitat from logging and natural disturbances," the report declared.

The panel was composed of four members from the U.S. Forest Service and one each from the Bureau of Land Management and Fish & Wildlife Service.

Timber harvesting impacts had not been calculated at press time.

The fallout from this report was predictable. Lumber and plywood prices surged nationwide, reported *Random Lengths*. Green lumber prices at western mills lifted sharply, atop increases which followed previous sawmill shutdown announcements. Plywood prices jumped in both western and southern pine producing regions.

Industry strategy appears directed toward spelling out the economic impact of such massive timber withdrawals not only to mill communities, but to consumers throughout the nation.

In Portland, Ore., forest industry employees from the area thronged a downtown plaza April 13 to demonstrate against further timber withdrawals.

While not binding, the scientists' report defines an optimum plan for owl protection which will be considered, along with issues such as employment and community survival, in deciding how much timber may be harvested annually from government—and possibly private—sources in the three western states, and from what specific locations. The committee's conclusion that the northern spotted owl is "imperiled" will certainly weigh heavily when the U.S. Fish & Wildlife Service decides whether or not to place the wee raptor on its threatened species list. That decision is to be made by June 23.

Meanwhile, shutdowns continue

The owl's usefulness to preservationists in pursuing restrictions against federal timber harvesting has been an issue for some time. Industry observers have been glum about economic prospects for western timber states.

In the April 1 issue of *PaperTree Letter*, analyst Evadna S. Lynn observed that timber supply constraints now overshadow demand influences upon structural panel prices. "Long-term, we expect the supply of western timber to continue declining, primarily in response to environmental pressures," wrote Lynn, first vice president-paper/forest products, Dean Witter Reynolds. Thus structural panel prices should jump sharply when the economy begins to strengthen.

Consultant Paul F. Ehinger has counted 46 sawmills and panel plants in Oregon, Washington and Idaho which have closed during the past two years—30 lumber mills with combined annual production of 1.2 billion bd ft, and 16 panel plants totaling 1.9 billion ft² in annual output.

"Ten to 20% of the current mill production will be gone by this time next year," he told the Portland *Oregonian*. "In the end, the consumer will pay."

Threatened harvesting curtailments could cost as many as 60,000 industry jobs in the Pacific Northwest, industry sources have estimated. ■

Proposed owl habitat conservation areas (Interagency committee recommendations)

	California	Oregon	Washington
Acres			
Major federal ownerships	1,555,400[1]	2,965,000[2]	2,673,000[2]
Other federal, state, private lands	448,250	217,000	586,000
Total	2,003,650	3,182,000	3,259,000
Number of HCAs	99	50	44

[1] National forests only. [2] National forests, BLM. [3] National forests, national parks.

Quip of the month

"How can you tell the difference between a preservationist and a terrorist?"

"You can negotiate with a terrorist."

Flooring mill reopens

The former Lindal Cedar Homes Ltd. hardwood flooring plant in Renfrew, Ont., reopened in April as Madawaska Hardwood Flooring Inc., after purchase by lumberman Ross Staples. Lindal had closed the plant in January. ■

Spiking, vandalism spread into South

Tree spiking, which has helped bring the term "eco-terrorism" into the industry's vocabulary, has migrated from the West to the South.

T&S Hardwoods Inc., Sylva, N.C., posted a $25,000 reward after 3½-in. nails were found in the sides and ends of about 30 logs, purchased and harvested by the firm, decked next to a clearcut on the Pisgah National Forest. Two incidents of equipment vandalism bracketed discovery of the spikes. Earlier, a bulldozer was used to push a T&S log skidder and bundle of logs over the side of a mountain. Slashed hydraulic hoses and damaged tires were found later on a logging machine elsewhere on the Pisgah.

District ranger Art Rowe said this was the first known case of tree spiking in the Southeast. An anonymous letter from Chicago, which claimed the nails were intended to discourage clearcutting on the Pisgah, directed officials to the site.

Such acts have been attributed by industry to the radical ecology group Earth First! Representatives of the group in various parts of the country have uniformly denied encouraging illegal acts, despite publication of instructions on doing so. The allegations are a case of "if it looks like a duck, walks like a duck and quacks like a duck . . . "

A statewide Conference on Conservation Law Enforcement last February in Prescott, Ariz., contained an agenda section on eco-terrorism, much of which was devoted to Earth First! tactics and publications.

Criminal acts in eco-terrorism are meant to achieve a political or social goal, said Ray Thompson, a Prescott National Forest official. The eco-terrorist takes concern for the environment to an extreme which exceeds the normal behavioral pattern accepted by society. Thompson said two tree spiking incidents were discovered on the Prescott National Forest last year.

The concept of "monkeywrenching" is aimed at destroying machinery, not injuring people, two Earth First! activists in Northern California said recently as part of a statement condemning tree spiking. ■

Building products earnings up, but decline expected

Integrated Canadian forest products companies took some severe hits to earnings in 1989. Newsprint profits were down sharply because of price discounting and the Canadian dollar's strength. By contrast, companies with heavy emphasis on building products did much better.

Damage from both Hurricane Hugo and the San Francisco earthquake strengthened building products markets in last year's fourth quarter. Newsprint has been in a down cycle for more than a year, while pulp prices started weakening late in 1989.

The result is a mixed bag for many producers, who have operations on both the solid-wood and pulp and paper sides.

According to industry analysts, the outlook isn't too bright for 1990-91. Most forest products markets are expected to continue declining throughout the two-year period, pulling earnings down with them. Declines are likely to be especially sharp on the paper side, where large increases in capacity are coming on line just in time to compete in already-weak markets.

Canadians saw the value of their dollar rise 3% during 1989, to 86.3 U.S. cents at the end of the year. The rising dollar eroded profits for most Canadian forest products, which are priced in U.S. dollars on world markets.

By mid-March, the Canadian dollar had slipped to 84.6 U.S. cents, but many Canadian producers consider this value still too high. ■

U.S. forest products companies, 1989 results ($ millions)

Company	Sales '89	% chg	Earnings '89	% chg
Boise Cascade	$4,338.0	5.9	$267.6	-7.5
Champion	5,163.2	2.8	144.6	-12.0
Chesapeake	813.1	14.3	47.6	-7.5
Georgia-Pacific	10,171.0	7.0	661.0	41.5
Intl. Paper	11,400.0	18.8	864.0	14.6
Louisiana-Pacific	2,009.5	11.7	392.6	-35.7
Pope & Talbot	618.8	20.2	43.6	38.6
Potlatch	1,227.6	13.2	136.7	21.7
Scott Paper	5,065.6	7.2	375.5	-6.3
Temple-Inland	1,894.2	6.8	207.4	4.1
Union Camp	2,761.5	3.8	299.4	1.4
Westvaco (10/31)	2,327.6	8.4	223.1	11.3
Weyerhaeuser	10,105.6	8.3	601.4	6.3
Willamette	1,891.8	10.2	191.1	18.6
Canadian companies				
Abitibi	C$3,257.7	-1.4	C$54.2	-71.6
Canadian Pacific FP	2,900.0	-3.3	220.1	31.9
Canfor	921.2	-15.0	96.4	-5.1
Doman	485.8	60.6	31.9	57.6
Domtar	2,515.0	0.6	33.0	-70.3
Fletcher Challenge	1,402.8	-4.7	120.0	-33.4
MacMillan Bloedel	3,273.7	0.0	246.7	-25.2
Noranda Forest	4,923.0	3.3	189.0	-28.1
Weldwood	767.6	-14.2	65.4	5.5
West Fraser Timber	550.0	18.6	28.4	-29.5

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